

Amendments to the Specification

Please amend paragraph [0016] of the substitute specification as follows:

[0016] In a preferred embodiment, a computer based system for designing experiments includes a meta layer module which uses a priori and supplementarily obtained knowledge to influence processing operations at an optimizer, thereby effectively tuning the optimizer. The knowledge preferably includes rules associated with interactions, such as rules relating to structure-interaction with data mining and other methods. The rules can be integrated in the processing the optimizer performs for designing experiments at to influence the optimizer processing before, during or after an optimization processing step, or even continuously.

Between paragraphs [0017] and [0018] of the substitute specification, please insert the following:

In a preferred embodiment, the inventive method for designing experiments for achieving an optimization goal has the following steps: A) selection of at least a first experiment from an experimental space by means of a data-driven optimizer in a computer unit; B) inputting of experimentally determined experiment data of the first experiment in at least one meta layer into a computer unit; C) use of at least one meta layer for the evaluation of the experiment data; D) inputting of the experimentally determined experiment data of the first experiment into the data driven optimizer; E) influencing of the data driven optimizer by the result of the evaluation in the meta layer and checking the goal achieved; F) selection of at least a second experiment from the experimental space by means of the data-driven optimizer; G) repetition of steps B) to E) for the data of the second experiment; and H) stopping the method on achieving the goal or repeating steps A) to F) for at least a third or subsequent experiments until the

goal has been achieved.

The method is repeated until the optimization goal has been achieved or until it is concluded that it may not be possible to achieve the optimization goal. The method can be terminated automatically or by the user. The optimization goal may be to reach certain evaluation characteristic numbers for the experiments. The characteristic numbers may, for example, be yield selectivities, space time yields, costs, physical properties, action mechanisms, derived properties, etc. It is also possible to evaluate the experiments using a plurality of characteristic numbers.

Please amend paragraph [0045] of the substitute specification as follows:

[0045] The module 13, if appropriate, re-evaluates an experiment or experiments, based on the rules and secondary conditions contained in the module 12. In a preferred embodiment, an experiment is re-evaluated only if a predefined threshold value is exceeded. Alternatively, the user can intervene to activate or deactivate the re-evaluation. The re-evaluation may include assigning a worse evaluation to experiments recognized as being poor and an improved evaluation to experiments recognized as being good. The optimizer 6 processes the data supplied from the module 9, which includes the data file from in the module 8, and -which, if appropriate, contains re-evaluated experiment data, to create a further experiment design which is then representatively stored as data in the experiment design module 14. The experiment set-up module 7 then performs experiments corresponding to the experiment designs stored in the module 14.